

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Mathias et al.	§	
	§	Group Art Unit: 2195
Serial No.: 10/613,779	§	
	§	Examiner: Caroline H. Arcos
Filed: July 1, 2003	§	
	§	Confirmation No.: 6983
For: System and Method to Monitor	§	
Amount of Usage of Applications in	§	
Logical Partitions	§	

Commissioner for Patents
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PATENT TRADEMARK OFFICE
CUSTOMER NUMBER

APPEAL BRIEF (37 C.F.R. 41.37)

This brief is in furtherance of the Notice of Appeal, filed in this case on January 30, 2009.

A fee of \$540.00 is required for filing an Appeal Brief. Please charge this fee to IBM Corporation Deposit Account No. 09-0457. No additional fees are believed to be necessary. If, however, any additional fees are required, I authorize the Commissioner to charge these fees which may be required to IBM Corporation Deposit Account No. 09-0457.

REAL PARTY IN INTEREST

The real party in interest in this appeal is the following party: International Business Machines Corporation of Armonk, New York.

RELATED APPEALS AND INTERFERENCES

This appeal has no related proceedings or interferences.

STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

The claims in the application are: 1-3 and 12-23

B. STATUS OF ALL THE CLAIMS IN APPLICATION

Claims canceled: 4-11

Claims withdrawn from consideration but not canceled: none

Claims pending: 1-3 and 12-23

Claims allowed: none

Claims finally rejected: 1-3 and 12-23

Claims objected to: 1-3 and 12-23

C. CLAIMS ON APPEAL

The claims on appeal are: 1-3 and 12-23

STATUS OF AMENDMENTS

No amendments after Final Office Action dated December 2, 2008 have been filed.

SUMMARY OF CLAIMED SUBJECT MATTER

A. CLAIM 1 - INDEPENDENT

The subject matter of claim 1 is directed to a method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage ([0009], lines 1-4; [0011], lines 1-5; [0039], lines 1-6; FIG. 3; FIG. 4; FIG. 7; FIG. 8). A guest operating system is executed in the logical partition ([0009] line 4; FIG. 1, reference numerals 22a, 22b, 22c, and 22n). The guest operating system then dispatches a plurality of applications in the logical partition ([0026] lines 10-21; [0034], lines 3-7; [0039] lines 11-17; FIG. 1, reference numerals 125a, 125b, 125c, and 125n; FIG. 7, reference numeral 206). The guest operating system or other program executing in the logical partition determines information indicative of an amount of usage of each of the applications ([0009], lines 6-8; [0033], lines 1-30; FIG. 7, reference numerals 204, 206, 208, 210, 211, 214, and 216). A hardware usage monitor determines logical partition usage information for hardware resources used by the logical partition ([0010], lines 1-7; [0011], lines 1-8; [0026], lines 1-31; [0029], lines 1-15; FIG. 3, reference numerals 93a, 93b, 93c, 93n, and 94; FIG. 5).

The amount of usage of each of the applications is reported to a billing function ([0009], lines 9-12; [0026] lines 30-40; [0036]; FIG. 9). The billing function determines a bill for each of the applications based on the amount of usage of each of the applications and the logical partition usage of hardware resources ([0009], lines 10-12; [0038], lines 1-18; FIG. 10, reference numerals 502, 504, 506, 508, 510, 512, 514, 516, 520, and 524).

B. CLAIM 12 - INDEPENDENT

The subject matter of claim 12 is directed to a method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage ([0009], lines 1-4; [0011], lines 1-5; [0039], lines 1-6; FIG. 3; FIG. 4; FIG. 7; FIG. 8), the computer system including storage private to the logical partition ([0023], lines 1-8; FIG. 1, reference numerals 22a, 22b, 22c, and 22n), storage private to the system and system functions ([0025] lines 17-18), and storage shared by the logical partition and the system functions ([0023], lines 8-10; [0026] lines 21-29; FIG. 1, reference numeral 63). A guest operating system is executed in the logical partition ([0009] line 4; FIG. 1, reference numerals 22a, 22b, 22c, and 22n). The guest operating system

dispatches a plurality of applications in the logical partition, determines information indicative of the amount of usage of each of the applications, and writes the information to the shared storage ([0009], lines 6-8; [0023], lines 8-10; [0026] lines 10-29; [0033], lines 1-30; [0034], lines 3-7; [0039] lines 11-17; FIG. 1, reference numerals 63, 125a, 125b, 125c, and 125n; FIG. 7, reference numerals 204, 206, 208, 210, 211, 214, and 216). A hardware usage monitor then determines logical partition usage information for hardware resources used by the logical partition ([0010], lines 1-7; [0011], lines 1-8; [0026], lines 1-31; [0029], lines 1-15; FIG. 3, reference numerals 93a, 93b, 93c, 93n, and 94; FIG. 5). One of the system functions reads the information from the shared storage and reports information indicative of the amount of usage of each of the applications to a billing function ([0009], lines 9-12; [0010] lines 1-7; [0026] lines 30-40; [0036]; FIG. 9). The billing function determines a bill for each of the applications based on the information obtained from the one system function and the logical partition usage information ([0009], lines 10-12; [0038], lines 1-18; FIG. 10, reference numerals 502, 504, 506, 508, 510, 512, 514, 516, 520, and 524).

C. CLAIM 19 - INDEPENDENT

The subject matter of claim 19 is directed to a method for determining an amount of usage of applications in a logical partition in a computer system and auditing such usage ([0009], lines 1-4; [0011], lines 1-5; [0037], lines 1-17; [0039], lines 1-6; FIG. 3; FIG. 4; FIG. 7; FIG. 8, FIG. 10), the computer system including storage private to the logical partition ([0023], lines 1-8; FIG. 1, reference numerals 22a, 22b, 22c, and 22n), storage private to the system and system functions ([0025] lines 17-18), and storage shared by the logical partition and the system functions ([0023], lines 8-10; [0026] lines 21-29; FIG. 1, reference numeral 63). A guest operating system is executed in a logical partition ([0009] line 4; FIG. 1, reference numerals 22a, 22b, 22c, and 22n). The guest operating system dispatches a plurality of applications in the logical partition, determines information indicative of the amount of usage of each of the applications, and writes the information to the shared storage ([0009], lines 6-8; [0023], lines 8-10; [0026] lines 10-29; [0033], lines 1-30; [0034], lines 3-7; [0039] lines 11-17; FIG. 1, reference numerals 63, 125a, 125b, 125c, and 125n; FIG. 7, reference numerals 204, 206, 208, 210, 211, 214, and 216). One of the system functions reads the information from the shared storage ([0036], lines 4-9; FIG. 9,

reference numeral 250). A total usage of all of the applications in the logical partition is determined based on the information from the shared storage ([0037], lines 12-17; FIG. 10, reference numeral 506). Another of the system functions determines the amount of usage of the logical partition without using application usage information generated by the guest operating system ([0038], lines 1-3; FIG. 10, reference numeral 510). The total usage of all of the applications in the logical partition is compared to the amount of usage of the logical partition to audit the amount of usage of the applications in the logical partition ([0038] lines 3-9; FIG. 10, reference numeral 512 and 514).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to review on appeal are as follows:

A. GROUND OF REJECTION 1

Whether the Examiner properly rejected claims 1-3 and 12-23 as being indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter in which the Applicants regard as the invention.

B. GROUND OF REJECTION 2

Whether the Examiner properly rejected claims 1-3 as being unpatentable under 35 U.S.C. § 103 in view of Applicants' admitted prior art.

C. GROUND OF REJECTION 3

Whether the Examiner properly rejected claims 12-22 under 35 U.S.C. § 103 in view of Applicants' admitted prior art and *Smith, et al.*, Application Service Provider Model Implementation on the Series Server, IBM Redbooks, 2001, pp. 1-259 (hereafter "*Smith*").

D. GROUND OF REJECTION 4

Whether the Examiner properly rejected claim 23 under 35 U.S.C. § 103 in view of Applicants' admitted prior art, *Smith*, and *Yoshimura*, Computer Resource Allocating Method, U.S. Patent No. 7,062,559 (June 13, 2006) (hereafter "*Yoshimura*").

ARGUMENT

A. GROUND OF REJECTION 1 (Claims 1-3 and 12-23)

1. Group A, claims 1-3

In rejecting the claims in this group, the Examiner stated the following:

As per claim 1, lines 10, it is unclear what does "said information" refer to? (i.e. information indicative of amount of usage of each application only or information of LPAR usage of hardware resources). Line 13, it is not clearly understood what is the relation between logical partition hardware usage in determining a bill for each application usage?

Office Action dated December 2, 2008, page 3.

Claim 1 is a representative claim of the claims in this group. Claim 1 reads as follows:

1. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said method comprising:
executing a guest operating system in said logical partition;
said guest operating system dispatching a plurality of applications in said logical partition;
said guest operating system or other program executing in said logical partition determining information indicative of an amount of usage of each of said applications;
determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;
based on said information, reporting said amount of usage of each of said applications to a billing function; and
said billing function determining a bill for each of said applications based on said amount of usage of each of said applications and said logical partition usage of hardware resources.

35 U.S.C. § 112 states:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Whether the language is clear is based on whether it would be clear to one of ordinary skill in the art. In this case, it is clear to one of ordinary skill in the art in claim 1 that "said information" refers to "information indicative of an amount of usage of each of said applications". No other reference to other types of information is present in claim 1. Thus, one of ordinary skill in the art would

understand that “said information” refers to “information indicative of an amount of usage of each of said applications” from reading this claim. This language does particularly point out and distinctly claim the subject matter regarded as the invention. Therefore, claims 1-3 are not indefinite under 35 U.S.C. § 112, second paragraph.

2. Group B, claims 12-18

In rejecting the claims in this group, the Examiner stated the following:

As per claim 12, line 11, it is unclear what does "said information" refer to? (i.e. information indicative of amount of usage of each application or LPAR usage information of hardware resources?). Line 13, it is not clearly understood what is the relation between logical partition hardware usage in determining a bill for each application usage?

Office Action dated December 2, 2008, page 3.

Claim 12 is a representative claim of the group. Claim 12 reads as follows:

12. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said computer system including storage private to said logical partition, storage private to said system and system functions, and storage shared by said logical partition and said system functions, said method comprising:
 executing a guest operating system in said logical partition;
 said guest operating system dispatching a plurality of applications in said logical partition, determining information indicative of said amount of usage of each of said applications, and writing said information to said shared storage;
 determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;
 one of said system functions reading said information from said shared storage and reporting information indicative of said amount of usage of each of said applications to a billing function; and
 said billing function determining a bill for each of said applications based on the information obtained from said one system function and the logical partition usage information.

As with claim 1, said information, when viewed by one of ordinary skill in the art, refers to information indicative of said amount of usage of each of said applications. One of ordinary skill in the art would not interpret “said information” to refer to “logical partition usage information for hardware resources used by the logical partition”. The claim recites that “said information” is

written to said shared storage after determining the information indicative of said amount of usage of each of said applications. Later, in the other use of “said information”, said information is read from said shared storage. As a result, one of ordinary skill in the art would interpret “said information” to refer to information indicative of said amount of usage of each of said applications and not logical partition usage information for hardware resources used by the logical partition.

Thus, claims 12-18 also are not indefinite under 35 U.S.C. § 112, second paragraph.

3. Group C, claims 19-23

In rejecting the claims in this group, the Examiner stated the following:

As per claim 19, lines 3, “said system”, it is unclear whether it is referring to “a computer system” referred to on line 2, or it is a different system (i.e. if it is the same system, it should be referred to as said computer system).

Office Action dated December 2, 2008, page 3.

Claim 19 is a representative claim of this group and reads as follows:

19. A method for determining an amount of usage of applications in a logical partition in a computer system and auditing such usage, said computer system including storage private to said logical partition, storage private to said system and system functions, and storage shared by said logical partition and said system functions, said method comprising:

- executing a guest operating system in a logical partition;
- said guest operating system dispatching a plurality of applications in said logical partition, determining information indicative of said amount of usage of each of said applications, and writing said information to said shared storage;
- one of said system functions reading said information from said shared storage;
- determining a total usage of all of said applications in said logical partition based on said information from said shared storage;
- another of said system functions determining said amount of usage of said logical partition without using application usage information generated by said guest operating system;
- comparing said total usage of all of said applications in said logical partition to said amount of usage of said logical partition to audit said amount of usage of said applications in said logical partition.

One of ordinary skill in the art, when reading claim 19, would recognize that “said system” refers to “said computer system”. The claim recites “said system including storage private to said logical partition, said storage private to said system and said system functions, and said storage

shared by said logical partition and said system functions”. One of ordinary skill in the art would clearly understand that “said system” does refer to “said computer system”.

Thus, claims 19-23 are not indefinite under 35 U.S.C. § 112, second paragraph.

4. Group D, claim 23

In rejecting claim 23, the Examiner stated the following:

As per claim 23, lines 5, it is not clearly understood where does a usage of said applications is added to? Line 6, it is unclear what “said usage” refer to. (i.e, the usage of said application in said LPAR or percentage utilization of LPAR ?)
Line 8, it is unclear what values is being subtracted? It is unclear which usage is subtracted of which usage.

Office Action dated December 2, 2008, page 3.

Claim 23 reads as follows:

23. A method as set forth in claim 19, wherein comparing said total usage of all of said applications in said logical partition to said amount of usage of said logical partition to audit said amount of usage of said applications in said logical partition, comprises:

- reading auditing and business rules;
- adding a usage of said applications for said logical partition;
- computing percent utilization of said logical partition to form said usage of said logical partition;
- reading logical partition usage data for said logical partition;
- subtracting said logical partition usage data from said usage of said logical partition to form a difference;
- determining whether said difference is within an acceptable range; and
- if the difference is within said acceptable range, computing a bill.

One of ordinary skill in the art recognizes that adding a usage of said applications for logical partition means adding the usage for each application to each other. The adding is not to any other type of usage or value, because the other type of usage or value is not recited. As a result, one of ordinary skill in the art would understand that the adding is to add the usage of the applications for these logical partitions to each other.

Further, the claims are to be interpreted in light of the specification. *In re Okuzawa*, 537 F.2d 545, 190 U.S.P.Q. 464 (C.C.P.A. 1976). According to the M.P.E.P.:

The meaning of every term used in any of the claims should be apparent from the descriptive portion of the specification with clear disclosure as to its import.... A term used in the claims may be given a special meaning in the description.

M.P.E.P. § 608.01(o).

The adding step is described in paragraph [037], which reads as follows:

[0037] FIG. 10 is a flow chart illustrating auditing program 55. In step 502, the auditing program 55 reads auditing and business rules previously entered by a systems administrator. The auditing and business rules specify the identity of the system to be audited, the amount of deviation that will be tolerated between the charges calculated by the hardware usage monitor data and the application usage monitor data, and the action to be taken when the deviation is excessive. Next, the auditing program adds together the usage of all applications in each LPAR from the application usage data recorded in storage 52 (steps 504 and 506). From this summation, the auditing program computes the percentage utilization of each LPAR based on the following equation (step 508):

$$\text{LPAR UTILIZATION} = (\text{Actual LPAR Usage}) \cdot \text{times} \cdot (\# \text{ Dedicated Processors For LPAR or Specified Processor Share For LPAR} \cdot \text{Times} \cdot \text{Total Number of Processors})$$

As can be seen, the specification teaches that the usage of the applications is added together.

Thus, one of ordinary skill in the art would understand the adding step in claim 23. Adding, in this step, does not refer to adding the usage of applications to another value. Instead, adding refers to adding the usage of said applications, which is interpreted by one of ordinary skill in the art to mean that the usage of each application is added together.

Further, the subtracting step clearly recites what is being subtracted. The subtracting step reads as follows: “subtracting said logical partition usage data from said usage of said logical partition to form a difference.” The logical partition usage data is subtracted from the usage of the logical partition. Therefore, claim 23 is not indefinite under 35 U.S.C. § 112, second paragraph.

Thus, claims 1-3 and 12-23 are not indefinite under 35 U.S.C. § 112, second paragraph, when these claims are interpreted by one of ordinary skill in the art.

B. GROUND OF REJECTION 2 (Claims 1-3): Whether the Examiner properly rejected claims 1-3 as being unpatentable under 35 U.S.C. § 103 in view of Applicants’ admitted prior art.

1. The Examiner bears the burden of establishing a *prima facie* case of obviousness.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). The prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In determining obviousness, the scope and content of the prior art are... determined; differences between the prior art and the claims at issue are... ascertained; and the level of ordinary skill in the pertinent art resolved.

Against this background the obviousness or non-obviousness of the subject matter is determined. *Graham v. John Deere Co.*, 383 U.S. 1 (1966). “Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l. Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007). “*Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.*” *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006)).”

In this case, the Examiner has failed to meet the required burden. The Applicants’ admitted prior art, as cited by the Examiner, does not teach all of the features as believed by the Examiner. This fact is admitted by the Examiner. The Examiner also has not provided sufficient articulated reasoning with rational underpinnings as to why the cited references would be combined and modified in the manner in which the Examiner proposes. Also, the modifications proposed by the Examiner would not be made when Applicants’ admitted prior art is considered as a whole by one of ordinary skill in the art. These, and other reasons, are described in more detail below.

2. An explicit analysis must be provided in an obviousness rejection.

In combining references, an explicit analysis is required to combine or modify references.

The Supreme Court has stated the following:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006). [R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR Int'l v. Teleflex Inc. 500 U.S., page 14 (2007). Conclusory statements are insufficient to support obviousness rejections.

Claim 1 is the representative claim of the group and reads as follows:

1. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said method comprising:
executing a guest operating system in said logical partition;
said guest operating system dispatching a plurality of applications in said logical partition;
said guest operating system or other program executing in said logical partition determining information indicative of an amount of usage of each of said applications;
determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;
based on said information, reporting said amount of usage of each of said applications to a billing function; and
said billing function determining a bill for each of said applications based on said amount of usage of each of said applications and said logical partition usage of hardware resources.

In the Final Office Action, the Examiner stated the following for modifying Applicants' admitted prior art to reach the presently claimed invention:

8. AAPA doesn't explicitly teach that said guest operating system or other program executing in said logical partition determining information indicative of an amount of usage of each of said applications;

based on said information, reporting said amount of usage of each of said applications to a billing function; and

said billing function determining a bill for each of said applications based on said amount of usage of each of said applications and said logical partition usage of hardware resources.

9. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to conclude from AAPA which teach measuring when the application begins and when it concludes execution that it is well known to calculate the amount of usage of the said application, also it is well known based on AAPA to track the overall resource consumption (hardware resource) then determine an amount of usage of each application, hence the billing of each application is based on each application usage and LPAR hardware resource consumption.

Office Action dated December 2, 2008, pages 4-5.

As can be seen, an express analysis containing articulate reasoning with some rational underpinning is not present in the statement. Instead, the Examiner has only said that it would be obvious to make a conclusion from the Applicants' admitted prior art to include determining information indicative of an amount of usage of each of said applications by a guest operating system or other program and reporting said amount of usage of each of said applications to the billing function based on the information. Further, the Examiner concludes that it would have been obvious to use a billing function to determine a bill for each of the applications based on the amount of usage of each of the applications and the logical partition usage of hardware resources without providing any analysis or reasoning as required by the Supreme Court.

More specifically, the Examiner has only stated that these steps could be reached from Applicants' admitted prior art pointing to teaching the measurement of when an application begins and concludes execution. The Examiner states from this teaching that it would be well known to calculate the amount of usage of said application. Further, the Examiner also stated that it is well known based on Applicants' admitted prior art to track overall resource consumption. The Examiner then reaches a conclusion that it would be logical to bill each application based on each application usage and hardware resource consumption.

The Examiner, however, has not provided any analysis as to why one of ordinary skill in the art would use the particular arrangement as recited in claim 1 and why one of ordinary skill in the art would make the modifications. More specifically, the Examiner has not explained or provided any analysis to meet the standards of *KSR* as to why the method would include reporting the amount of usage to a billing function and to use the billing function to generate a bill for each of the applications.

The statements made by the Examiner do not provide reasons as required in the Supreme Court guidance in the *KSR* case. Instead, the Examiner has only provided statements that are conclusory or reciting some desired goal. These conclusions and desired goals have not been supported with any explicit analysis or articulated reasoning with some rational underpinnings to support the conclusions or goals for combining the elements in these two references in the manner proposed by the Examiner.

3. The proposed modifications to Applicants' admitted prior art would not be made when this art is considered as a whole.

"It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *In re Hedges*, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986). The differences between Applicants' admitted prior art in the presently claimed invention are great. In particular, Applicants' admitted prior art teaches the following:

[0006] It was also known for a guest operating system in each LPAR to track when each application begins execution and ceases execution, as "binary application indicator" information. (It was also known for another guest operating system to measure the time that each application is dispatched.) The "binary application indicator" information indicates whether the respective application ran at any time during the previous sampling period. The guest operating system recorded this binary application indicator information in storage private to the LPAR. It was also known for the guest operating system in each LPAR to track overall resource consumption in a sampling period, i.e. the amount of service units consumed by all program functions (i.e. guest operating system, applications, etc.) in the LPAR during the sampling period. The guest operating system recorded this resource consumption information in storage private to the LPAR. A prior art software-based reporting system cross-referenced/compiled the

application indicator information for the respective LPAR and the corresponding LPAR resource consumption information. This cross referencing/compiling produces a report which indicates how many service units were used by all the LPARs that executed each application during the previous sampling period. If two applications ran in an LPAR, then each application was charged for the overall resource consumption of the entire LPAR. This report was then used to determine an amount to charge the customer for the usage of each application. Customers then manually submit the cross referencing reports to the owner of the applications. These reports are input to an auditing and pricing application in a remote work station of the owner. While the foregoing process for a software-based reporting system was effective, it required that (a) the guest operating system in each LPAR track when each application begins and ceases execution, (b) the guest operating system in each LPAR track overall resource consumption of the LPAR and (c) the software-based reporting system cross reference data from each LPAR. This was burdensome to the systems administrator because there can be many LPARs in each system. Also, some reports are susceptible to customer tampering.

Specification, U.S. Patent Application 20050004879, paragraph 6.

As can be seen, Applicants' admitted prior art in this application specifically teaches that binary application indicator information indicates whether an application ran at any time during a sampling period. In other words, the application may have only run for part of the sampling period or all of the sampling period. Thus, one of ordinary skill in the art would be able to accurately measure the amount of usage of said application based on this teaching.

When Applicants' admitted prior art is viewed by one of ordinary skill in the art, the information generated does not provide the actual usage of an application. As a result, without this information, it is difficult to identify how much of the hardware resources were used by each application if more than one application executed during a sampling period.

This situation is the one pointed out by Applicants' admitted prior art as to the difficulties of generating a bill that is based on the usage of an application in a logical partition. When other parts of Applicants' admitted prior art is viewed by one of ordinary skill in the art, Applicants' admitted prior art makes it clear that before Applicants' invention, additional burdensome steps were needed, including customers manually submitting cross-referencing reports to the owner of applications.

Further, the Examiner has provided no analysis containing an articulated reasoning with rational underpinning as to how one of ordinary skill in the art would be motivated to change this

mechanism to one that actually tracks the usage of an application in which this usage is tracked by a guest operating system or other program executing in the logical partition. Thus, one of ordinary skill in the art would not be motivated to make the changes needed to reach the presently claimed invention in claim 1 when Applicants' admitted prior art is viewed as a whole.

C. GROUND OF REJECTION 3 (Claims 12-22): Whether the Examiner properly rejected claims 12-22 under 35 U.S.C. § 103 in view of Applicants' admitted prior art and *Smith et al.*, Application Service Provider Model Implementation on the Series Server, IBM Redbooks, 2001, pp. 1-259 (hereafter "*Smith*").

The Examiner has rejected claims 12-22 under 35 U.S.C. § 103 as being unpatentable over Applicants' admitted prior art in view of *Smith*.

1. Group A, claims 12-18

Claim 12 is a representative claim of the claims in this group of claims and reads as follows:

12. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said computer system including storage private to said logical partition, storage private to said system and system functions, and storage shared by said logical partition and said system functions, said method comprising:

- executing a guest operating system in said logical partition;
- said guest operating system dispatching a plurality of applications in said logical partition, determining information indicative of said amount of usage of each of said applications, and writing said information to said shared storage;
- determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;
- one of said system functions reading said information from said shared storage and reporting information indicative of said amount of usage of each of said applications to a billing function; and
- said billing function determining a bill for each of said applications based on the information obtained from said one system function and the logical partition usage information.

Claim 12 includes features similar to claim 1. As a result, claim 12 is patentable over Applicants' admitted prior art in *Smith*, because the features relied upon in Applicants' admitted prior art cannot be modified as believed by the Examiner. Further, *Smith* provides no teaching,

suggestion, or incentive for one of ordinary skill in the art to modify Applicants' admitted prior art to meet the deficiencies.

Additionally, when Applicants' admitted prior art is viewed as a whole, Applicants' admitted prior art teaches identifying sampling periods in which an Application is active. This teaching, however, does not provide information needed to determine the amount of usage of each of the applications. The beginning of execution and ceasing of execution of an application can only be identified with respect to whether the application was executed during a particular sampling period. This indication, however, does not provide the information needed to accurately identify the amount of usage for an application needed to perform billing. This deficiency is especially apparent when more than one application executes during a particular sampling period as described in Applicants' admitted prior art.

Thus, Applicants' admitted prior art alone and/or in combination with *Smith* cannot be modified to include the feature in claim 12 in which the guest operating system determines information indicative of said amount of usage of each of the applications with this application being used to determine a bill for each of the applications based on the information obtained.

2. Group B, claims 19-22

Claims 19 and 22 are in a separate group from claims 12-18. Claim 19 is a representative claim and is patentable over the cited references for the same reasons as claim 12. Claim 19, however, does not include a billing function that is recited in claim 12. Claim 19, however, does determine the usage of all of the applications in the logical partition based on information indicative of the amount of usage of each application. As discussed above with respect to claim 1, Applicants' admitted prior art does not provide one of ordinary skill in the art any motivation to modify those teachings to reach the presently claimed invention. Further, the Examiner has not provided the analysis as required by the Supreme Court under *KSR* to make the changes needed to Applicants' admitted prior art to reach the presently claimed invention.

D. GROUND OF REJECTION 4 (Claim 23): Whether the Examiner properly rejected claim 23 under 35 U.S.C. § 103 against claim 23 in view of Applicants' admitted prior art, *Smith*, and *Yoshimura*, Computer Resource Allocating Method, U.S. Patent No. 7,062,559 (June 13, 2006) (hereafter, "*Yoshimura*").

Claim 23 has been rejected by the Examiner as being obvious under 35 U.S.C. § 103 in view of Applicants' admitted prior art, *Smith*, and *Yoshimura*. Claim 23 is patentable over the cited references because Applicants' admitted prior art and *Smith* do not teach the features in claim 19 as discussed above with respect to claim 19.

Claim 23 is further patentable over these references because the features relied upon by the Examiner in Applicants' admitted prior art cannot be modified based on the statements made by the Examiner. Further, Applicants' admitted prior art, *Smith*, and *Yoshimura* would not be modified when viewed as a whole by one of ordinary skill in the art as discussed above.

The Examiner has admitted that these cited references do not teach the subtracting and determining steps in claim 3. The Examiner, however, modifies these references to include the steps in claim 23 using the following statements:

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to conclude from the combined teaching and especially AAPA that the auditing process which compared the utilization reports (comparing involve subtracting the value of 2 reports) and by auditing, one would be able to make a judgment whether the comparing is within an acceptable value, if it is" the bill will be generated. This concept is illustrated in AAPA and applicant submission of supplemental IDS filed on 12/29/2003 that stated on page 2, last paragraph that the auditing tool compares both LPAR utilization report to confirm (bill) or audit.

Office Action dated December 2, 2008, page 17.

Again, the Examiner has made conclusory statements that do not provide the needed analysis as set out by the Supreme Court in *KSR*. The Examiner, in this case, has stated that, based on Applicants' admitted prior art, it would be obvious to make a judgment as to whether the comparing is within an acceptable value for generating a bill.

Applicants' admitted prior art, however, provides no teaching or suggestion as to how the auditing is to be performed. Further, the Examiner has not explained or provided any analysis as to how one of ordinary skill in the art would modify a teaching of inputting reports to an auditing pricing application in a remote workstation of an owner to become a feature in which a determination is made as to whether a difference from subtracting logical partition usage data from usage of said logical partition is within an acceptable range for use in computing a bill. This particular type of auditing technique in the manner recited in claim 23 is not shown or

suggested in *Smith* and *Yoshimura* alone or in combination with Applicants' admitted prior art. Thus, the Examiner has only made conclusory statements without providing any analysis as to how such modifications would be made.

Further, when these references are considered as a whole by one of ordinary skill in the art, these modifications would not be made. These references also would not provide one of ordinary skill in the art any motivation or incentive to modify those references to reach these features.

The Examiner states:

49. the combined teaching of AAPA and Smith doesn't explicitly teach that computing percent utilization of said logical partition to form said usage of said logical partition;
 subtracting said logical partition usage data from said usage of said logical partition to form a difference;
 determining whether said difference is within an acceptable range; and if the difference is within said acceptable range, computing a bill.

50. However, Yoshimura teaches computing percent utilization of said logical partition to form said usage of said logical partition (col. 18, 51-56).

51. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA, Smith and Yoshimura because Yoshimura teaching of computing the LPAR percent of utilization would improve system efficiency and one would be able to fine tune the system based on the percentage of utilization.

Office Action dated December 2, 2008, pages 16-17.

As can be seen, the Examiner merely states that the percent of logical partition utilization would improve system efficiency and would allow someone to fine tune a system based on percentage of utilization. This statement is only a desire or conclusion. The Examiner has provided no explicit analysis under the standards promulgated by the Supreme Court in *KSR* as to why one of ordinary skill in the art would look to *Yoshimura* and how this teaching would be selected from all of the other features and processes disclosed in *Yoshimura* to be combined with Applicants' admitted prior art and *Smith*.

Furthermore, one of ordinary skill in the art would not be motivated to combine the references in the manner suggested by the Examiner when the references are considered as a whole. For example, one of ordinary skill in the art would consider the problems solved in

considering the references as a whole. Applicants' admitted prior art is concerned with billing the use of resources in logical partition systems. *Yoshimura* is concerned with the following problem:

The above prior art has the following problems. In a method for manually configuring a load balancer and a network switch based on an agreement, it is difficult to cope with in real time abrupt load fluctuation which cannot be predicted on the user company side. This is the same for the case of allocating different computers between users and the case of using a virtual computer. Further, the network managers of both the user and the data center expend enormous efforts for system extension and holding of user's network security. In an environment to dynamically change a network configuration by load fluctuation, it is difficult to always manually manage the user's security.

Yoshimura, column 2, lines 36-47.

As can be seen, *Yoshimura* is concerned with allocating computers to users in a manner that copes with real time abrupt load fluctuations. The problems addressed by these two references are very different.

One of ordinary skill in the art would also consider the solutions disclosed when considering the references as a whole. For example, Applicants' admitted prior art is disclosed as a mechanism for tracking use of logical partitioned systems. *Smith* is directed towards implementing application service providers. *Yoshimura* teaches:

The present invention prepares a user identification table and VPN, VLAN and storage network configuration definition tables which are managed in a managing server. A user company is specified in the user identification table from a user request packet to a data center. On the other hand, a set of computers to execute a process for each user is defined in the VLAN configuration definition table, which is then configured in a load balancer and a network switch. The load balancer selects anyone from the set of computers configured to execute a user request. When there are plural load balancers, the managing server controls this table to be matched between the load balancers. The managing server monitors the network bandwidth and configuration and the operating state of each computer to check if a service level agreement is satisfied. If necessary, the network bandwidth and the computer resources are decreased or increased to be matched with the agreement contents with the user and to change the VLAN configuration of the user for holding security. Specifically, the network configuration definition table of the set of computers is changed to be re-configured for the load balancer and the network switch. The managing server creates histories of the computer resource amount allocated to the user and of whether the service level agreement is followed and creates charge information.

Yoshimura, column 2, line 61- column 3, line 17.

Yoshimura discloses a mechanism for selecting computers to execute user requests. The disclosures in the references are also very different from each other. Thus, one of ordinary skill in the art would not be motivated to combine the references in the manner suggested by the Examiner. Further, one of ordinary skill in the art would not have a reason or incentive to make the modifications suggested by the Examiner when the references are considered as a whole. Thus, the combination and modification of these references would not be made when the references are considered as a whole.

E. CONCLUSION

As shown above, the Examiner has failed to state valid rejections against any of the claims. Therefore, Applicants request that the Board of Patent Appeals and Interferences reverse the rejections. Additionally, Applicants request that the Board direct the Examiner to allow the claims.

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Respectfully submitted,

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CLAIMS APPENDIX

The text of the claims involved in the appeal is as follows:

Listing of Claims:

1. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said method comprising:
 - executing a guest operating system in said logical partition;
 - said guest operating system dispatching a plurality of applications in said logical partition;
 - said guest operating system or other program executing in said logical partition determining information indicative of an amount of usage of each of said applications;
 - determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;
 - based on said information, reporting said amount of usage of each of said applications to a billing function; and
 - said billing function determining a bill for each of said applications based on said amount of usage of each of said applications and said logical partition usage of hardware resources.

2. A method as set forth in claim 1 further comprising:
 - determining said amount of usage of each of said applications based on said information determined by said guest operating system or said other program executing in said logical partition;
 - and
 - reporting said amount of usage of each of said applications.

3. A method as set forth in claim 1 further comprising:

determining a total usage of all of said applications in said logical partition based on said information determined by said guest operating system or said other program; and

comparing said total usage of all of said applications to an amount of usage of hardware resources by said logical partition to audit said amount of usage of said applications in said logical partition or a charge based on said amount of usage of said applications.

4-11. (Cancelled)

12. A method for determining an amount of usage of applications in a logical partition in a computer system and a bill for such usage, said computer system including storage private to said logical partition, storage private to said system and system functions, and storage shared by said logical partition and said system functions, said method comprising:

executing a guest operating system in said logical partition;

said guest operating system dispatching a plurality of applications in said logical partition, determining information indicative of said amount of usage of each of said applications, and writing said information to said shared storage;

determining, by a hardware usage monitor, logical partition usage information for hardware resources used by the logical partition;

one of said system functions reading said information from said shared storage and reporting information indicative of said amount of usage of each of said applications to a billing function; and

said billing function determining a bill for each of said applications based on the information obtained from said one system function and the logical partition usage information.

13. A method as set forth in claim 12 wherein said guest operating system determines the amount of usage of each of said applications and reports the amount of usage of each of said applications to said shared storage.

14. A method as set forth in claim 12 wherein said guest operating system calculates the amount of usage of each of said applications using storage private to said logical partition, and then reports the amount of usage to said shared storage.

15. A method as set forth in claim 12 wherein said one system function processes said information obtained from said shared storage into a different form, and then reports said information in said different form to said billing function.

16. A method as set forth in claim 12 further:

determining an amount of usage of said logical partition without using application usage information generated by said guest operating system;

determining a total usage of all of said applications in said logical partition based on said information from said shared storage; and

comparing said total usage of all of said applications to said amount of usage of said logical partition, to audit said amount of usage of said applications in said logical partition or a charge based on said amount of usage of said applications.

17. A method as set forth in claim 16 wherein the step of determining said amount of usage of said logical partition based on said system data is performed by checking usage bits of processors which execute said logical partition.

18. A method as set forth in claim 12 wherein said bill is based on a peak usage.

19. A method for determining an amount of usage of applications in a logical partition in a computer system and auditing such usage, said computer system including storage private to said logical partition, storage private to said system and system functions, and storage shared by said logical partition and said system functions, said method comprising:

executing a guest operating system in a logical partition;

said guest operating system dispatching a plurality of applications in said logical partition, determining information indicative of said amount of usage of each of said applications, and writing said information to said shared storage;

one of said system functions reading said information from said shared storage;

determining a total usage of all of said applications in said logical partition based on said information from said shared storage;

another of said system functions determining said amount of usage of said logical partition without using application usage information generated by said guest operating system;

comparing said total usage of all of said applications in said logical partition to said amount of usage of said logical partition to audit said amount of usage of said applications in said logical partition.

20. A method as set forth in claim 19 wherein determining said amount of usage of said logical partition is performed by checking usage bits of processors which execute said logical partition.

21. A method as set forth in claim 19 further comprising:

determining a bill for each of said applications based on said usage of each of said applications in said logical partition and said amount of usage of said logical partition.

22. A method as set forth in claim 19, wherein said another of said system functions determining said amount of usage of said logical partition without using application usage information generated by said guest operating system comprises:

computing percent utilization of said logical partition as $\text{said logical partition utilization} = (\text{actual logical partition usage}) \times (\text{number of dedicated processors for logical partition or specified processor share for said logical partition} \times \text{total number of processors})$.

23. A method as set forth in claim 19, wherein comparing said total usage of all of said applications in said logical partition to said amount of usage of said logical partition to audit said amount of usage of said applications in said logical partition, comprises:

reading auditing and business rules;

adding a usage of said applications for said logical partition;

computing percent utilization of said logical partition to form said usage of said logical partition;

reading logical partition usage data for said logical partition;

subtracting said logical partition usage data from said usage of said logical partition to form a difference;

determining whether said difference is within an acceptable range; and

if the difference is within said acceptable range, computing a bill.

EVIDENCE APPENDIX

This appeal brief presents no additional evidence.

RELATED PROCEEDINGS APPENDIX

This appeal has no related proceedings.